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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,228	01/30/2006	Tomoo Sugawara	4252-0112PUS1	2961

2292 7590 10/16/2006

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EXAMINER
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TESKIN, FRED M

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 10/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/519,228

Applicant(s)

SUGAWARA

Examiner

Fred M. Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 5-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 20041227.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

Claims 1-20 are currently pending and under examination herein.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claims 5-20 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. As filed, claims 5-9, 11, 16 and 17 (all multiple dependent claims) depend from one (or more) other multiple dependent claims. See MPEP § 608.01(n). Accordingly, claims 5-9, 11, 16 and 17 (and the claims dependent thereon) have not been further treated on the merits.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 00/71544.

WO '544 demonstrates the ring-opening metathesis polymerization of 1,5-cyclooctadiene in a reaction mixture containing a catalyst of its invention (all of which are imidazolidine-based metathesis catalysts) and specific chain transfer agents, the reaction being performed in bulk and at a temperature less than 230°C (i.e., 50°C; see page 21, lines 10-17 and the first entry of Table 3 of Example 6, as well as page 18, lines 23-28). 1,5-cyclooctadiene is considered a species of "cycloolefin ( $\alpha$ )" as claimed, based on applicant's definition of "metathesis ring-opening reaction sites" and citation of cyclooctene as an example of cyclic structure having a metathesis ring-opening reaction site (Specification page 9, lines 9-15). By analogy, cyclooctadiene would appear to possess two such reaction sites and the cited examples otherwise meet the essential limitations of claims 1, 2 and 4.

However, should the examiner's finding of cyclooctadiene as a cycloolefin within claims 1 and 2 be shown to be incorrect, it nevertheless would have been obvious to one of ordinary skill in the art to employ the requisite cycloolefin in the reference procedure since WO '544 identifies dicyclopentadiene (DCPD) as the most preferred monomer and teaches the alternativeness between monocyclic and polycyclic structures as well as the suitability, as cyclic olefin substrate, of a single cyclic olefin and mixtures of two or more different cyclic olefins (page 14, lines 1-13). Thus the inclusion of DCPD in the monomer solution of WO '544 containing a chain transfer agent and

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metathesis polymerization catalyst would have been obvious to one having ordinary skill in the art at the time of applicant's invention.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/71544 in view of WO 97/03096.

WO '544 is applied as in the preceding rejection. WO '544 does not teach bulk polymerization of a polymerizable composition comprising a crosslinking agent as claimed.

However, the desirability of including a peroxide crosslinking agent in a cycloolefin monomer solution subjected to ROMP in the presence of a metal carbene catalyst of the type employed in WO '544 is well known in the art as taught by WO '096. See in particular pages 4-5, bridging paragraph of WO '096, where the benefit of producing polymers with very high crosslink density without inactivating the metal (Os or Ru) carbene complex is reported. Suitable monomers may be acyclic or cyclic, and include norbornene derivatives such as DCPD (page 9, lines 12-17).

At the time of applicant's invention, it would have been obvious to one of ordinary skill in the art to include a peroxide crosslinking agent in the polymerizable mixture of WO '544 containing a chain transfer agent and metathesis polymerization catalyst. The expectation of obtaining polymer displaying an increase in crosslink density comparable to that taught by WO '096 in the context of an analogous ROMP procedure would have provided ample incentive for modifying the primary reference so as to produce the instantly claimed invention.

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The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Woodson et al and Grubbs et al are cited as pertinent to metathesis-polymerizable compositions containing DCPD cyclic olefin and peroxide as post-cure crosslinker of the polycycloolefin.


No claims are allowable at this time.

Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMTeskin/09-28-06

  
FRED TESKIN  
PRIMARY EXAMINER  
1713